## REMARKS

Claims 46-52 and 55-58 are presently pending in the application and all claims remain rejected. By this amendment, claim 46 has been amended, claims 51-52 have been canceled without prejudice to future presentation and new claims 80-81 have been added. Applicants request cancellation of the indicated claims without prejudice to future presentation. It is believed that no new matter has been added and entry of these amendments is requested.

*35 U.S.C. 112 rejections*

Claims 46-58 stand rejected under 35 U.S.C. 112, first paragraph, for lack of adequate written description. The Examiner is of the opinion that the specification does not disclose adequate description of the structure and function of enough species to support the claimed genus of peptides. The Examiner states at page 3 of the Office Action that the claimed genus "encompasses a sizable number of derivatives between 10 and 25 amino acid residues in length and no guidance in regard to which residues should or should not be changed to preserve any particular function.

The claims have been amended to recite complexes comprising peptides or peptide derivatives having at least 10 contiguous amino acids of the disclosed sequences or peptides that are at least 50% homologous to said sequences and contain the same binding specificity. Furthermore, the peptides or peptide derivatives have a length of at most 25 amino acids. As noted by the Examiner, a claimed genus may be satisfied by "disclosure of relevant, identifying characteristics, i.e., structure or other physical and/or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure..."

In response to the Examiner's assertion that the claimed genus lacks adequate written description, Applicants submit that the genus is described by the following structural characteristics: at least 10 and at most 25 amino acids of the disclosed sequences or at least 10

and at most 25 amino acids having 50 % homology to the disclosed sequences. Also, all members of the genus functionally exhibit a specificity or affinity equivalent to the disclosed sequences and include anchor positions for binding to MHC class II molecules DR B1 0301, DR B! 0401, DR B1 0402 and DR B1 0404.

Based on the amendments to the claims and the above remarks, it is believed that this grounds of rejection has been obviated and withdrawal of the rejection of the claims for lack of written description is requested. In addition, it is respectfully submitted that new claims 80-81 also satisfy the written description requirements and allowance of these claims is requested.

Claims 46-58 also stand rejected for lack of enablement. The Examiner has asserted that it would be unpredictable which peptides would have the desired biological activity. In rejecting the claims for lack of enablement, the Examiner states at page 5 of the Office Action that "it is unpredictable if any functional activity will be shared by two polypeptides having less than 100 % identity over the full length of their sequences." In response, Applicants note Example 5, where numerous variant sequences are disclosed. The Examiner also notes that "[t]he specification does not appear to provide sufficient guidance as to which residues should or should not be changed to preserve any particular function...[and that]...the variation permitted by the instant claim language is extensive." Thus, the Examiner asserts that "the experimentation left to those skilled in the art to determine which 'variant' sequences would still result in polypeptides having the same function as the GAD polypeptides disclosed...is unnecessarily, and improperly, extensive and undue."

In response, Applicants submit that the Specification clearly teaches that the proliferation assay with GAD-specific T cell lines provides an adequate and efficient assay for determining reactivity of any GAD "variant" peptide with DR3 or DR4 alleles. Also, as well known by those of ordinary skill in the art, techniques such as, e.g., Ala-scans, can be used, wherein each amino acid of the peptide individually is replaced by an alanine residue. Furthermore, in Example 5 of

the specification a plurality of variants of peptide 5G1 are disclosed which are easily analyzed for functional activity. The claims have been modified to recite 10 contiguous amino acids of the disclosed sequences or sequences that are 50% homologous to said sequences. In sum, the above teachings demonstrate that no undue experimentation is required to determine if a variant as claimed will retain the functions of the disclosed peptides. Such variants can be evaluated simply, providing clear results, and without undue experimentation.

Based on the amendments to the claims, it is believed that this grounds of rejection has been obviated and withdrawal of the rejection of the claims for lack of enablement is requested. In addition, it is respectfully submitted that new claims 80-81 also satisfy the enablement requirements and allowance of these claims is requested.

In view of the above amendments and remarks, it is believed that all of the pending claims satisfy the requirements of the patent statutes. Reconsideration of the instant application, withdrawal of all rejections and early notice of allowance are requested. The Examiner is invited to telephone the undersigned if it is deemed to expedite allowance of the application.


| RESPECTFULLY SUBMITTED, | | | | | |
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